

**10/578602**

**1AP20 Rec'd PCT/PTO 08 MAY 2006**

**IN THE UNITED STATES PATENT & TRADEMARK OFFICE**

Applicant: Steffen Hardt

International Application No.: PCT/EP2004/012650

International Filing Date: 09 November 2004

For: METHOD FOR SEPARATING CHEMICAL  
SUBSTANCES AND/OR PARTICLES, DEVICE AND  
USE THEREOF

Date: May 8, 2006

**Mail Stop PCT**  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**INFORMATION DISCLOSURE STATEMENT**

Sir:

This invention relates to electric fields applied parallel to and/or vertical to the interfaces on adjacent microfluid lamellae made of nonmiscible media containing said biomolecules and bioparticles to which they have different physico-chemical affinities in order to separate biomolecules and bioparticles and the biomolecules and bioparticles are electrophoretically separated.

As authorized and encouraged under 37 C.F.R. §1.97-1.99, applicant hereby cites as a means of complying with the duty of disclosure set forth in 37 C.F.R. §1.56, the following patents and/or documents, required copies enclosed, which the Examiner should consider with respect to the above-identified United States Patent Application:

| FOREIGN DOCUMENTS  |            |         |
|--|------------|---------|
| PATENT/DOCUMENT NO.  | DATE       | COUNTRY |
| 37 42 292  | 06/01/1989 | DE      |
| 00/22428   | 04/20/2000 | WIPO    |
| 199 30 253   | 12/28/2000 | DE      |
| 694 27 690   | 05/02/2002 | DE      |
| 100 63 096   | 09/12/2002 | DE      |
| 101 13 257   | 11/14/2002 | DE      |
| 03/066191  | 08/14/2003 | WIPO    |
| 1 353 172  | 10/15/2003 | EP      |
| OTHER PRIOR ART/ARTICLE  |            |         |
| C.W. Theos et al., <i>Electroextraction Two-Phase Electrophoresis, Applied Biochemistry and Biotechnology</i> , Vol. 54, (1995), pp. 143-157.  |            |         |
| S. Devasenathipathy, et al., <i>Electrokinetic Particle Separation</i> , 7 <sup>th</sup> International Conference on Miniaturized Chemical Biochemical Analysis Systems, October 5-9, 2003, pp. 845-848.                                 |            |         |
| T. Herweck, et al., <i>Visualization of Flow Patterns and Chemical Synthesis in Transparent Micromixers</i> , Microreaction Technology, Proceedings of the Fifth International Conference on Microreaction Technology, 2001, pp.215-229. |            |         |
| V. Reddy, et al., <i>Organic/Aqueous Two Phase Microflow for Biological Sample Preparation</i> , 7 <sup>th</sup> International Conference on Miniaturized Chemical and Biochemical Analysis Systems, October 5-9, 2003, pp. 437-440.     |            |         |
| C.-L. Liu, et al., <i>Partitioning of Proteins Using Two-Phase Aqueous Surfactant Systems</i> , AIChE Journal, April 1995, Vol, 41, No. 4, pp.991-995.   |            |         |
| V.G. Gaikar, et al., <i>The Effect of Surface Active Additives on the Partitioning of Proteins and Enzymes in Aqueous Two-Phase Systems</i> , J. Chem. Tech. Biotechnol. , 1996, Vol. 67, pp. 329-332.                                   |            |         |
| D. Raymond, et al., <i>Continuous Sample Pretreatment Using a Free-Flow Electrophoresis Device Integrated onto a Silicon Chip</i> , Analytical Chemistry, 1994, Vol. 66, No. 18, pp. 2858-2864, XP-000478030.                            |            |         |
| F. Hachem, et al., <i>Hydrophobic Partitioning of Proteins in Aqueous Two-Phase Systems</i> , Enzyme and Microbial Technology, Vol. 19, 1996, pp. 507-517, XP-002316648.   |            |         |

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In accordance with 37 CFR 1.98(a)(2)(i) only the foreign and non-patent documents are required for the express purpose of providing the Patent and Trademark Office with an ample opportunity to evaluate the same and to arrive at an independent assessment of its materiality, if any, with regard to the examination of the application.

An examination of the present application considering the above documents is requested.

Respectfully submitted,

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Attorney Docket No.: FMW-CP-PCT-US

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| <b>U.S. PATENT DOCUMENTS</b>  |    |  |            |  |       |          |                            |
| Examiner Initial  |    | Document Number  | Date       | Name                                   | Class | Subclass | Filing date if appropriate |
|   | AA |  |            |  |       |          |                            |
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| <b>FOREIGN PATENT DOCUMENTS</b>   |    |  |            |  |       |          |                            |
|   |    | Document Number  | Date       | Country                                | Class | Subclass | Translation<br>Yes No      |
|   | AL | 37 42 292  | 06/01/1989 | DE                                     |       |          |                            |
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|   | AP | 100 63 096   | 09/12/2002 | DE                                     |       |          |                            |
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|   | AR | C.W. Theos et al., <i>Electroextraction Two-Phase Electrophoresis, Applied Biochemistry and Biotechnology</i> , Vol. 54, (1995), pp. 143-157.  |            |  |       |          |                            |
|   | AS | S. Devasenathipathy, et al., <i>Electrokinetic Particle Separation</i> , 7 <sup>th</sup> International Conference on Miniaturized Chemical Biochemical Analysis Systems, October 5-9, 2003, pp. 845-848.                                 |            |  |       |          |                            |
|   | AT | T. Herweck, et al., <i>Visualization of Flow Patterns and Chemical Synthesis in Transparent Micromixers</i> , Microreaction Technology, Proceedings of the Fifth International Conference on Microreaction Technology, 2002, pp.215-229. |            |  |       |          |                            |
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|   | AL | 101 13 257   | 11/14/2002 | DE  |       |          |                            |
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|                          |    | Document Number | Date | Country | Class | Subclass | Translation<br>Yes No |
|                          | AL |                 |      |         |       |          |                       |
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